Alexithymia and coping profiles in autoimmune disorders: a comparative study of AIT, RA, and type 1 diabetes

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Abstract

Objective: This study aimed to explore the association between alexithymia levels and the frequency of constructive coping strategies in patients with autoimmune diseases, specifically autoimmune thyroiditis (AIT), rheumatoid arthritis (RA), and type 1 diabetes mellitus (T1DM).

Method: A total of 120 participants were enrolled: 30 with AIT (14 men, 16 women, mean age 39 years), 28 with RA (8 men, 20 women, mean age 58 years), 32 with T1DM (6 men, 26 women, mean age 40 years), and 30 healthy controls (9 men, 21 women, mean age 31 years). Patients with AIT and T1DM were examined at Yaroslavl City Endocrinological Center (Russia), and patients with RA at the rheumatology department of Yaroslavl Regional Clinical Hospital (Russia). The control group was recruited from the patients' social circles without these diseases. Patients were assessed using the Method for the Determination of Individual Coping Strategies (E. Heim), the Toronto Alexithymia Scale (TAS), K. Izard's Differential Emotions Scale (adapted by A.V. Leonova), and the Dembo-Rubinstein Self-Esteem Assessment (modified by A.M. Prikhozhan). Statistical analyses were performed using Statistica 13, employing Spearman's rank correlation coefficient and the Mann-Whitney U test.

Results: Higher alexithymia levels were associated with reduced use of constructive coping strategies across all patient groups ($p<0.01$). The RA group exhibited the highest mean alexithymia score (74.46), followed by AIT (69.80) and T1DM (59.30). T1DM patients favored adaptive cognitive coping strategies ($p=0.015$), while AIT patients leaned toward adaptive behavioral coping ($p=0.068$). RA patients showed the least frequent use of behavioral coping strategies ($p=0.048$). In T1DM patients, a strong positive correlation was found between negative emotions and anxious-depressive states ($r=0.74$, $p<0.001$), while anxious-depressive emotions negatively correlated with behavioral coping ($r=-0.45$, $p<0.05$). Additionally, higher alexithymia levels were associated with reduced positive emotions ($r=-0.54$, $p<0.01$) and increased self-dissatisfaction ($r=0.45$, $p<0.05$), with self-dissatisfaction inversely related to emotional coping ($r=-0.51$, $p<0.01$).

Conclusions: Patients with chronic autoimmune diseases demonstrate elevated alexithymia levels compared to healthy controls, which negatively impacts their ability to employ adaptive coping strategies. Tailored psychotherapeutic interventions are recommended to address emotional expression issues in these populations.

Keywords: alexithymia, autoimmune diseases, coping strategies, emotional regulation, rheumatoid arthritis, type 1 diabetes mellitus, autoimmune thyroiditis.

Introduction

Autoimmune diseases, including autoimmune thyroiditis (AIT), rheumatoid arthritis (RA), and type 1 diabetes mellitus (T1DM), are chronic conditions characterized by the immune system attacking the body's own tissues, leading to persistent inflammation and complex treatment challenges [1]. These diseases often follow a relapsing-remitting course, with remission being difficult to achieve, and some may result in severe disability [2]. Beyond physical symptoms, the psychological impact of these conditions is profound, influencing patients' self-esteem, emotional regulation, and coping mechanisms [3].

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Changes in self-esteem and self-identity resulting from an incurable, poorly controlled, disfiguring, or fatal condition are integral components of the process of adapting to such a condition. Chronic illness alters a person's self-attitude, as the previously formed identity during health is replaced by a pathological identification reflecting physical impairments, emotional reactions to physical symptoms, and cognitive representations of the disease, introducing uncertainty into their lives [4].

Psychological factors such as stress, anxiety, depression, alexithymia, and suppressed aggression can modulate immune functions and influence the clinical activity of many chronic autoimmune diseases [5]. Alexithymia, defined as difficulty identifying and expressing emotions, is increasingly recognized as a predictor of psychosomatic disorders and a marker of emotional dysregulation [6]. Alexithymia is associated with hyperactivation of the sympathoadrenal and hypothalamic-pituitary-adrenal systems, exacerbating disease progression, and has been linked to various autoimmune conditions, including AIT, RA, and T1DM, particularly during phases of preserved organ function [7]. In patients with AIT, alexithymia is highly prevalent, especially during the euthyroid stage, and is closely related to emotional-personal characteristics, contributing to non-psychotic mental disorders [7]. Similarly, patients with RA often exhibit restricted emotional reactions, suppressed aggression, and coping mechanisms like denial and isolation of affect, indicative of alexithymia [8].

The adaptation of patients with chronic autoimmune diseases involves not only managing physical symptoms but also navigating emotional and cognitive responses to their condition [9]. A prospective three-year study showed that a pain-coping strategy characterized by restrictive behavior (e.g., reduced activity, limited exertion, and catastrophizing responses) predicts decreased quality of life and increased psychological maladjustment, regardless of disease severity [8]. Additionally, chronic illness can lead to nosogenic psychological changes, including fear, anger, grief, anxiety, social isolation, reduced self-confidence, and the development of an inferiority complex, particularly in T1DM patients [8, 10]. From a psychoanalytic perspective, somatic illness may provide a "secondary gain", allowing patients to avoid intrapersonal conflicts while seeking care and attention, which can contribute to the development of labile diabetes in patients [11]. In modern times, the emphasis on medicine and pharmacology, where every patient has the right to be heard, may drive individuals to express emotions somatically rather than psychologically, contributing to the prevalence of physical illnesses [8]. Patient behavior in response to diagnosis is marked by significant emotional distress, including withdrawal, alienation, and increased anxiety, potentially leading to obsessive fears about complications and an inferiority complex [10]. The pathogenic influence of chronic disease — marked by prolonged intoxication, impaired metabolic processes, and exhaustion — further alters mental processes, exacerbating psychological distress [8].

While much prior research has focused on type 2 diabetes, this study investigates the autoimmune forms of disease — specifically T1DM and AIT — as they represent prevalent conditions where the body begins to perceive its own tissues as adversaries [8]. To yield more intriguing outcomes, we chose to explore the connection between T1DM and AIT, given AIT's status as a common representative of autoimmune diseases [8]. The theoretical analysis of coping behavior suggests that patients with autoimmune diseases face greater difficulties in selecting strategies probably due to their reliance on illness perception and distinct emotional traits, which shape their attitudes and behaviors [12]. Developing programs to enhance coping strategies could prevent disorganized behavior in overcoming disease-related challenges.

In our initial study [13], we investigated emotional expression and coping strategies in patients with AIT and T1DM, finding that AIT patients struggle to express emotions constructively, leading to accumulated self-dissatisfaction over time, while T1DM patients lean toward anxious-depressive experiences, affecting their adaptive coping. This current research expands the sample and includes a group of patients with RA.

This study expands on prior research by examining the interplay between alexithymia and coping behaviors in patients with AIT, RA, and T1DM, compared to a healthy control group. We hypothesized that higher alexithymia levels would correlate with less frequent use of constructive coping strategies under stress.

Method

Participants

The study included 120 participants:

- **Autoimmune Thyroiditis (AIT):** 30 patients (14 men, 16 women; mean age: 39 years), recruited from a city endocrinology center.
- **Rheumatoid Arthritis (RA):** 28 patients (8 men, 20 women; mean age: 58 years), recruited from the rheumatology department of a regional clinical hospital.
- **Type 1 Diabetes Mellitus (T1DM):** 32 patients (6 men, 26 women; mean age: 40 years), recruited from the same endocrinology center as the AIT group.

- **Control Group:** 30 healthy individuals (9 men, 21 women; mean age: 31 years), recruited from the patients' social circles, with no history of autoimmune diseases.

Measures

The following validated instruments were used:

- Method for the Determination of Individual Coping Strategies (E. Heim): Assesses cognitive, emotional, and behavioral coping strategies.
- Toronto Alexithymia Scale (TAS): Measures alexithymia levels, with higher scores indicating greater difficulty in emotional identification and expression.
- K. Izard's Differential Emotions Scale (adapted by A. V. Leonova): Evaluates the intensity of positive and negative emotions.
- Dembo-Rubinstein Self-Esteem Assessment (modified by A. M. Prikhozhan): Assesses self-esteem and self-dissatisfaction.

Statistical analysis

Data were analyzed using Statistica 13 software. Spearman's rank correlation coefficient was used to explore relationships between variables, and the Mann-Whitney U test was applied for group comparisons. Statistical significance was set at $p<0.05$, with trends noted at $p<0.10$.

Results

Alexithymia levels across groups

Significant differences in alexithymia levels were observed between groups (Tables 1 and 2). The RA group exhibited the highest mean alexithymia score (mean: 74.46), approaching threshold levels for pronounced alexithymia ($p=0.001$). The AIT group also showed elevated alexithymia (mean: 69.80, $p=0.002$), exceeding normative values, while the T1DM group had a lower mean score (59.30), within the normative range. Healthy controls had significantly lower alexithymia levels compared to all patient groups ($p<0.01$).

Coping strategies

Patients with T1DM were more likely to employ adaptive cognitive coping strategies (mean: 1.67, $p=0.015$), whereas those with AIT favored adaptive behavioral coping (mean: 1.03, $p=0.068$, trend) (Table 3). RA patients used behavioral coping strategies least frequently (mean: 0.68, $p=0.048$) compared to T1DM patients (mean: 1.03) (Table 4).

Scale	Mean Score (AIT)	Mean Score (T1DM)	Standard Value	Mann-Whitney U	p-Value
Alexithymia Index	69.80	59.30	62	244.5	0.002

Notes: T1DM = type 1 diabetes mellitus; AIT = autoimmune thyroiditis. Higher scores indicate greater alexithymia levels.

Table 1. **Comparative analysis of alexithymia index across T1DM and AIT groups ($p<0.01$)**

Scale	Mean Score (RA)	Mean Score (T1DM)	Standard Value	Mann-Whitney U	p-Value
Alexithymia Index	74.46	59.30	62	102	0.001

Notes: RA = rheumatoid arthritis; T1DM = type 1 diabetes mellitus. Higher scores indicate greater alexithymia levels.

Table 2. **Comparative analysis of alexithymia index between RA and T1DM groups ($p<0.05$)**

Scale	Mean Score (T1DM)	Mean Score (AIT)	Mann-Whitney U	p-Value
Cognitive coping	1.67	1.17	307.5	0.015
Behavioral coping	0.70	1.03	334.5	0.068*

** Trend ($p < 0.10$). Scores reflect frequency of coping strategy use (arbitrary units).*

Table 3. **Comparative analysis of coping strategies in T1DM and AIT groups ($p<0.05$)**

Scale	Mean Score (RA)	Mean Score (T1DM)	Mann-Whitney U	p-Value
Behavioral coping	0.68	1.03	304	0.048

Notes: Scores reflect frequency of behavioral coping strategy use (arbitrary units).

Table 4. **Comparative analysis of behavioral coping between RA and T1DM groups ($p<0.05$)**

Emotional dynamics in T1DM patients

In the T1DM group, a strong positive correlation was found between negative emotions and anxious-depressive states (r=0.74, p<0.001), indicating that increased negative emotional expression is associated with heightened anxious-depressive tendencies. Additionally, anxious-depressive emotions negatively correlated with the use of adaptive behavioral coping strategies (r=–0.45, p<0.05), suggesting that higher anxiety levels reduce the frequency of effective problem-solving behaviors. Furthermore, alexithymia was negatively associated with positive emotions (r=–0.54, p<0.01) and positively correlated with self-dissatisfaction (r=0.45, p<0.05), while self-dissatisfaction was inversely related to the use of emotional coping strategies (r=–0.51, p<0.01) (Table 5). These findings highlight the complex interplay between emotional regulation, self-perception, and coping in T1DM patients.

RA group findings

In the RA group, alexithymia negatively correlated with both cognitive (r=–0.50, p<0.01) and emotional coping strategies (r=–0.39, p<0.05), and positively correlated with self-dissatisfaction (r=0.40, p<0.05) (Table 6). This suggests that difficulty in emotional recognition impairs adaptive coping and exacerbates self-dissatisfaction.

Discussion

This study confirms that patients with autoimmune diseases exhibit higher alexithymia levels compared to healthy controls, consistent with prior research [4, 5]. The AIT group demonstrated the most pronounced alexithymia, likely due to difficulties in emotional expression, which accumulate over time and exacerbate self-dissatisfaction, particularly with age [14]. T1DM patients, while displaying lower alexithymia levels, showed a propensity for anxious-depressive emotions, which negatively impacted their behavioral coping strategies [10]. RA patients exhibited the highest alexithymia levels, leading to reduced use of adaptive coping strategies and increased reliance on rational problem-solving [11].

The interplay between alexithymia, emotional regulation, and coping strategies underscores the need for targeted psychotherapeutic interventions. Suppressing emotions, as observed in T1DM patients, not only limits positive emotional experiences but also fuels self-dissatisfaction, hindering adaptive coping [12]. Similarly, RA patients' restricted emotional expression and avoidance of psychological engagement suggest a maladaptive coping style characterized by denial and isolation of affect.

Conclusions

This study highlights distinct patterns in patients with AIT, RA, and T1DM:

- **RA Patients:** High alexithymia levels correlate with reduced use of cognitive and emotional coping strategies, increasing self-dissatisfaction. Older patients tend to rely on rational problem-solving, which may complicate emotional work.
- **T1DM Patients:** Negative emotions are strongly associated with anxious-depressive states, reducing the use of adaptive behavioral coping. Alexithymia exacerbates self-dissatisfaction and limits positive emotions.
- **AIT Patients:** High alexithymia levels impair emotional expression, leading to increased self-dissatisfaction and reduced use of adaptive cognitive coping strategies.

Variable	Alexithymia Index	Positive emotions		Dissatisfaction rate
Alexithymia Index	–	–0.54**	–0.54**	0.45*
Positive emotions	–0.54**	–	–	–0.61**
Dissatisfaction rate	0.45*	0.45*	–0.61**	–

*Notes: T1DM = type 1 diabetes mellitus. *p < 0.05; **p < 0.01. Correlation coefficients (r) indicate strength and direction of relationships.*

Table 5. **Correlations among alexithymia, positive emotions, and dissatisfaction in T1DM patients (p<0.05*, p<0.01**)**

Variable	Cognitive coping	Emotional coping	Dissatisfaction rate
Alexithymia Index	–0.50**	–0.39*	0.40*

*Notes: RA = rheumatoid arthritis. *p < 0.05; **p < 0.01. Correlation coefficients (r) indicate strength and direction of relationships.*

Table 6. **Correlations among alexithymia, coping strategies, and dissatisfaction in RA patients (p<0.01**, p<0.05*)**

- Elevated alexithymia across all groups negatively affects the adoption of constructive coping strategies, ultimately impacting quality of life and psychological adjustment.

Recommendations for psychotherapeutic interventions

Based on these findings, we propose the following psychotherapeutic strategies:

- **T1DM patients:** Focus on enhancing emotional awareness and expression to reduce anxiety and improve adaptability. Teach cognitive and emotional coping strategies to mitigate anxious-depressive tendencies.
- **AIT patients:** Support patients in constructively expressing both positive and negative emotions to prevent the accumulation of self-dissatisfaction over time.
- **RA patients:** Address alexithymia to improve adaptability and self-esteem, considering the age-related shift toward rational coping, which may hinder emotional processing.

A comprehensive approach should integrate emotional, cognitive, and behavioral interventions:

- **Emotional expression training:** Expand emotional vocabulary, encourage appropriate emotional responses, and introduce relaxation techniques.
- **Self-esteem development:** Use psychotherapy techniques to foster a positive self-image.
- **Coping strategy enhancement:** Train patients in adaptive coping through practical exercises and support group participation.
- **Stress and anxiety management:** Employ relaxation, breathing exercises, and creative outlets to reduce anxiety.

This holistic approach aims to improve self-regulation, self-perception, and coping abilities, enhancing patients' quality of life.

Declaration of interests
The authors declare no conflicts of interest.

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